

DIRECTIONS FOR
CONTEX



CONTEX

METHOD OF OPERATION

The CONTEX is the most rapid adding machine on the market.

It takes a considerably shorter time to add up a column twice on the CONTEX — the second time for checking purposes — than it does to perform the same operation once on a tape listing type machine.

The CONTEX may be used for multiplication for which reason this handy little machine is suitable for most forms of arithmetical processes.

ADDITION. The keys are depressed by the 1st, 2nd and 3rd fingers of the right hand. It is most important from the very beginning to practice the correct (clean) depressions which means that each key must be pressed right down and then released sharply. Furthermore the operator must, of course, be careful, not to let the other fingers actuate keys in other columns.

Make it a rule always to clear the machine before starting a new operation.

The practiced operator will sooner or later be capable of working the CONTEX by touch only, and this development is facilitated by the fact that each key travels a distance varying from that of the others. Similarly there are two degrees of concavity on the key faces. When practicing on the CONTEX you should always

bear in mind that confidence is more important than speed. In the beginning work slowly, the routine will soon be developed.

The figures are registered in the machine as read, i. e. from left to right and in such a manner that one key is depressed at a time. Figures above 5 are invariably split up into two depressions: 2×3 , $3 + 4$, 2×4 and $4 + 5$.

In order to insure a correct result, each addition should be checked up by repetition, preferably in such a manner that the figures are registered in the reverse order of the first operation.

It is obvious that the result is not affected by the order in which the figures are added; thus it may be found convenient where the individual figures consist of many numbers to add up the decimals first and then proceed with the left hand side of the decimal point. In a case of figures consisting of six numbers or more, it will be found convenient to divide up into further columns which are then added up separately, for example:

79 348 75

53 497 25

48 731 00

Very long columns such as found in a day book may be divided up crosswise, e. g. in three sections.

MULTIPLICATION. The multiplication operation is most easily described by means of a few examples. Example 1: $719 \times 342 = 245898$.

Clear the machine and apply the 1st, 2nd and

3rd finger on the keys 3, 4 and 2 as shown in fig. 1. Strike these three keys simultaneously, repeating the depression 9 times; make sure that each key is completely depressed and left to regain its top position.

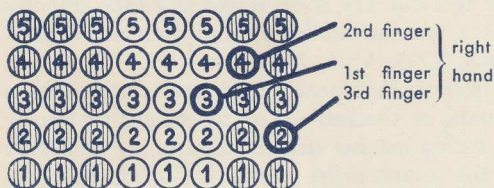


Fig. 1

Leave the three fingers in position and move the hand one column towards the left as shown on fig. 2. Strike once. Move again one column to the left (fig. 3) and strike 7 times, whence the answer recorded will be the result of operations analysed as follows:

$$\begin{array}{rcl}
 9 \times & \left. \begin{array}{l} 10 \times \\ 700 \times \end{array} \right\} 342 & \left\{ \begin{array}{l} = 3078 \\ = 3420 \\ = 239400 \end{array} \right. \\
 \hline
 719 \times & 342 & = 245898
 \end{array}$$

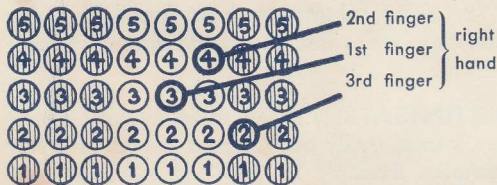
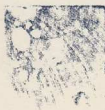


Fig. 2

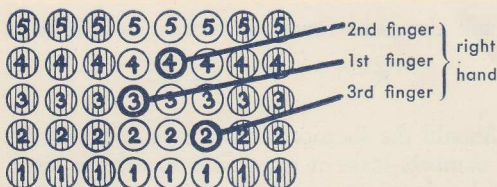


Fig. 3

If one of the two figures to be multiplied contains number values above 5, the fingers should be set to the other figure as shown in the foregoing example. If both figures contain numbers higher than 5, e. g. 389×847 one of these figures will have to be split up, each part being multiplied by the other figure.

Example 2:

$$389 \times 847 = 389 \times (545 + 302) = 389 \times 545 + 389 \times 302.$$

Clear the machine and proceed as follows:

$$\begin{array}{rcl} 9 \times & \left. \begin{array}{l} \\ \\ \end{array} \right\} 545 & \left\{ \begin{array}{l} = 4905 \\ = 43600 \\ = 163500 \end{array} \right. \\ 80 \times & & \\ 300 \times & & \\ \hline 389 \times 545 & = & 212005 \end{array}$$

$$\begin{array}{rcl} 9 \times & \left. \begin{array}{l} \\ \\ \end{array} \right\} 302 & \left\{ \begin{array}{l} = 2718 \\ = 24160 \\ = 90600 \end{array} \right. \\ 80 \times & & \\ 300 \times & & \\ \hline 389 \times 302 & = & 117478 \end{array}$$

$$389 \times 847 = 212005 + 117478 = 329483.$$

It will always be found convenient to split at 5:

$$6 = 5 + 1, 7 = 5 + 2 \text{ etc.}$$

Should the location of the keys or an excess of numbers make it impossible to use the right hand only, resort to the left for assistance. Fig. 4 gives an example of the position of the fingers in multiplying by the figure 31244:

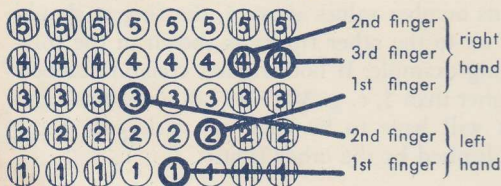


Fig. 4

SUBTRACTION is effected on the CONTEX by addition of the subtrahent complement and then registering the figure 9 in all the remaining columns. The complement value of a figure is the value which must be added to that figure in order to make up the nearest multiple of 10. Thus the complement value of 4 is 6, 18 gives 82, 123 gives 877 etc.

Example: Subtract 12 from 72.

Register 72 in the machine which will then record 000000072. Add the complement of 12 which is 88, giving the result 000000160. Now register the figure 9 in all columns to the left of the complement, 88. The result recorded is 100000060.

The answer is read as 60. It will be noticed that the number 1 appears on the extreme left; this need not be removed, but will serve as an indication of how many subtractions have been made. Hence it is only possible to subtract figures composed of a maximum of eight numbers.

NB. It will often be found easier to calculate the complement values number by number and the above subtraction may then be made in the following manner. Register the figure 72. Beginning from the left hand side, strike nines until you reach the two columns on the extreme right, where the subtrahent complement has to be registered. The first number is fixed by deducting 1 from 9 making 8, and the second by deducting 2 from 10 making 8; result 88. Especially in the case of higher figures consisting of many numbers this alternative method will be found useful. Thus the complement of 178.92 is calculated as follows:

$$\begin{array}{r}
 \text{(10)} \\
 999.90 \\
 \text{less } 178.92 \\
 \hline
 821.08
 \end{array}$$

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